

Spread footing foundations would require holes approximately 50 feet by 50 feet square and 6 to 8 feet deep. Backfill would be compacted in the bottom of the hole and a reinforced square concrete footing would be poured. A reinforced concrete pedestal approximately 3 feet high would be mounted on the concrete footing to hold the tower. The concrete footing would be covered with approximately 2.5 feet of compacted backfill and 6 inches of topsoil, leaving the pedestal above ground.

If bedrock is encountered, it is anticipated that rock anchors may be used to secure the base of the footing. Explosives may be required in some circumstances to create holes for foundations.

### **Towers.**

The towers would be approximately 161 to 262 feet tall at the turbine hub, and with the nacelle and rotor mounted, the total height of the wind turbine would be approximately 300 to 390 feet high with a rotor blade in the vertical position. The towers would be smooth, hollow steel structures, approximately 14 feet in diameter at the base and tapering to the nacelle. The towers would be painted neutral gray or off-white to be visually less obtrusive. A control cabinet would be located inside the base of each tower. A ladder inside the structure would ascend to the nacelle to provide access for turbine maintenance. A locked door would provide access at the base of the tower.

Some of the towers would be furnished with obstruction lighting at the top of the nacelle for aircraft safety. The number of wind turbines with lights and the type of lighting would be determined in consultation with the Federal Aviation Administration (FAA). For the Stateline Wind Project in Eastern Washington and Oregon, the FAA required white flashing lights in the daytime and red flashing lights at night. Lights were required to be placed every thousand feet and at the ends of turbine strings.

Turbine towers have two to three sections. Turbine tower sections would be transported to the site on trailers that each carry one tower section. Tower sections would be delivered by truck to staging areas and then to each tower location. They would then be erected using a large construction crane.

### **Nacelle.**

As each tower is being assembled, the nacelle, hub, rotor blades, and other turbine equipment would be delivered to each tower location. The nacelle would be hoisted to the top of the tower by a large construction crane and bolted to the tower. The hub and rotor blades would be assembled on the ground; then the entire rotor assembly would be hoisted and attached to the nacelle.

The nacelle would be equipped with an anemometer and a wind vane that signals wind direction changes to an electronic controller. In conjunction with the electronic controller, a yaw mechanism would use electric motors to turn the nacelle and rotor so that the blades face into the wind.

The diameter of the circle swept by the blades would range from approximately 172 to 262 feet (that is, each blade would be approximately 86 to 131 feet long). The three rotor blades would be composed of composite fiberglass.

### 2.1.2.2 Electrical System

The electrical system associated with the wind turbines would consist of the following:

- A transformer at the base of each tower that would collect 600 volts from individual turbines and increase the voltage to 34.5-kV or 69-kV
- The collector lines from the transformers to either or both of the two substations
- One (for the first 50 aMW) or two (for a larger project) substations where energy would be transformed or “stepped up” from 34.5-kV or 69-kV to 230-kV
- For a project over 50 aMW, an overhead 230-kV transmission line from the eastern area substation that would connect to one of BPA’s existing transmission lines, or directly into BPA’s Midway Substation north of the project.

To facilitate the interconnection of the first 50 aMW, BPA would either 1) tap the 230-kV transmission line and install three switches at the tap point, or 2) build a new 1- to 2-acre substation adjacent to the project’s western substation to terminate the existing line. Subsequent stages of the project would be connected to a second substation in the eastern portion of the project site. The most likely interconnection option would be to build a new 4-mile 230-kV transmission line (see Figure 2.1-2) to interconnect with the existing BPA Big Eddy-Midway 230-kV transmission line. BPA will prepare a transmission study to verify the feasibility of this interconnection and evaluate other options for interconnecting subsequent stages. The other options may include:

- BPA may need to double-circuit (build a second line on the same right-of-way) the Big Eddy-Midway line from the interconnection point to the Midway Substation north of the project.
- The project developer could build a 230-kV transmission line approximately 7 miles long from the eastern substation to interconnect with BPA’s North Bonneville-Midway 230-kV transmission line, a few miles west of the project.
- A small possibility exists that the project developer would build a 230-kV transmission line about 15 miles from the eastern substation north to interconnect directly into BPA’s Midway Substation.

It is unknown whether any of these options would be necessary. Because these options are speculative at this time, this EIS does not address impacts of interconnection other than the most likely options of connecting both substations directly to the Big Eddy-Midway transmission line. If another option is pursued for the subsequent stages, additional environmental analysis would be prepared, as necessary.

All options would require installation of metering, supervisory control and data acquisition (SCADA), communications, and relaying equipment at one or both of the project developer’s substations located on the project site.

#### **Collector System.**

Transformers would be located on a concrete pad approximately 5 feet by 5 feet square constructed immediately adjacent to the tower base. From there, power from the turbine would be transmitted via underground 34.5-kV or 69-kV electric cables buried approx-

imately 3 to 4 feet below the ground surface, in a trench up to 5 feet wide. In areas where collector cables from several strings of turbines follow the same alignment (for example, near a substation), multiple sets of cables would be installed within each trench where possible. Underground cables would be used in most areas. Overhead cables on tubular steel towers or wood poles would be used to connect turbine strings in steep areas or areas where soils or bedrock conditions make it necessary.

Overhead poles would be approximately 45 to 70 feet high (although in some locations poles as high as 85 feet may be required). The span between overhead poles would be between 200 and 300 feet. Overhead poles would be designed so that electrical conductors are spaced a sufficient distance apart to keep conductors from contacting each other in storms and to minimize the risk of bird electrocution. In addition, triangular or other “anti-perching” devices would be installed on all pole structures to discourage birds from perching on them.

Construction would require access (approximately 8 feet in width) for heavy equipment along the length of overhead lines. At each structure location, an area approximately 100 feet by 100 feet would be required as a temporary laydown or staging area where heavy equipment and poles would be placed during the installation of each structure.

### **Substations.**

The project developer would build and maintain one (for a 50 aMW project) or two (for a larger project) fenced substation sites occupying up to 4 acres each. The sites would be gravel except for concrete pads underneath transformer and switching equipment. A gravel parking area for maintenance vehicles would also be included. Transformers would be nonpolychlorinated biphenyl (PCB) oil-filled types. The foundations would be designed to contain more than 100 percent of the capacity of oil in the transformer to prevent discharge to the ground in the event of a transformer casing failure.

### **Transmission Line.**

If a project greater than 50 aMW is built, a second substation would be built in the eastern portion of the project site. Energy from the eastern project substation would most likely be transmitted to BPA’s existing Big Eddy-Midway 230-kV transmission line via a new 4-mile overhead transmission line that would be built and maintained by the project developer. For this 230-kV transmission line, tubular steel or wood poles would be approximately 100 feet high and would be spaced about 800 feet apart. It is estimated that about 26 poles would be needed for the 4-mile transmission line.

Constructing the 4-mile overhead 230-kV transmission line would require similar types of construction laydown areas as for the overhead collector system. In addition, it is likely that two or three conductor stringing sites would be required. These would be areas approximately 200 feet by 200 feet, located approximately 100 to 200 feet from the transmission line, where equipment would be stationed to pull the conductor the length of a line segment.

Overhead line construction would follow standard industry procedures and entail the following major activities: surveying, corridor preparation, materials hauling, structure assembly and erection, ground wire and conductor stringing, and cleanup and restoration.

The transmission line would be constructed and maintained in conformance with the National Electric Safety Code and other applicable codes and standards.

Raptor anti-perching devices would be installed on all new overhead power line poles within 1 mile of turbine strings to limit potential raptor use near the wind turbines. All power lines would be constructed following *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996* (APLIC, 1996); specifically, conductors would be spaced as recommended by the study to minimize the potential for bird electrocution.

#### **2.1.2.3 Meteorological Towers**

Meteorological (met) towers are used to measure wind conditions. They are slender steel towers approximately 165 feet high. These towers usually have 3 or 4 anemometers to record wind speeds at several elevations. One met tower is currently being used in the study area and is located at the ridgetop near BPA's existing transmission line. Met towers are usually secured by guy wires that extend up to 110 feet from the base of each tower. Guyed met towers require no foundation support.

Two or three additional met towers would be installed for the project. The met towers would be constructed upwind of turbine strings or groups of turbine strings to monitor wind strengths as part of the process used to confirm turbine performance.

#### **2.1.2.4 Access Roads**

The western end of the study area in Yakima County is accessible via Interstate 82, State Route 241, and Lewandowski Road, then via private ranch roads. The eastern portion of the study area in Benton County is accessible via Interstate 82, North Gap Road, and other rural roads (see Section 3.9.3 and Figure 3.9-1). From the termination of county roads, both routes currently lead to the ridgetop via private 4-wheel-drive ranch and farm roads.

The only Yakima County road that would be used by project traffic is Lewandowski Road, which appears to be in good condition and not in need of upgrading. However, the project developer would work with the Yakima County Public Works Department to determine whether the road would need to be upgraded for use by heavy construction vehicles.

Several Benton County gravel roads may require upgrading to support construction vehicle loads. This could involve obtaining right-of-way from property owners. The project developer would work with engineers from the Benton County Department of Public Works to ensure that all roads, bridges, and culverts are capable of carrying the proposed loads. County roads would be restored to their pre-project condition and to the satisfaction of the Benton County Department of Public Works if any damage to the roads were to occur as a result of construction activities.

The project would include improving existing private roads and constructing new gravel roads on private property to provide access for construction vehicles and equipment. New roads would be located to minimize ground disturbance, maximize transportation efficiency, and avoid sensitive resources and unsuitable areas. Up to 10.3 miles of existing private roads would need to be improved and up to 44.5 miles of new roads would be constructed. New gravel roads would be constructed along and between each turbine string on the project site if no farm roads currently exist. Generally these roads would be up to

30 feet wide, including shoulders. An additional 10 feet on either side of the road would be temporarily disturbed by heavy equipment during roadwork.

All roads would be designed under the direction of a licensed engineer. Proper permits, approvals, and authorizations would be obtained prior to all roadwork. Any existing culverts would be replaced with wider or stronger culverts as necessary, and drainage improvements would be made pursuant to a project erosion control plan and National Pollutant Discharge Elimination System (NPDES) permit as necessary to control runoff.

The road construction contractor would bring gravel for road improvements from newly permitted onsite quarries or from other local permitted gravel resources. Potential quarry sites are shown in Figure 2.1-2. After construction of the project, use of the access roads on private lands would be restricted by landowner permission and would be used by project maintenance staff. These roads would have locked gates.

#### **2.1.2.5 Operation and Maintenance Buildings**

Up to three permanent O&M facilities would be constructed on the project site. Each O&M building would be approximately 20,000 square feet, including an office and workshop area, restroom, and kitchen facility. The O&M buildings, including parking, would be on 4-acre sites. Potable water would be acquired from the landowner or from another source with a permitted water right. Water use for these facilities would be less than 5,000 gallons per day and used water would drain into an onsite septic system. A graveled parking area for employees, visitors, and equipment would be adjacent to each building. The entire area would be fenced and have a locked gate.

Constructing these facilities would involve conventional building activities: clearing and grading, constructing a foundation pad, framing and finishing the building, electrical wiring, plumbing, constructing a sanitary wastewater system, and outfitting the buildings with office and shop facilities. Buildings would be constructed in accordance with Benton County and *Uniform Building Code* (UBC) requirements.

### **2.1.3 Construction**

It is expected that construction activities could begin in summer 2002 and operation could begin in winter 2002-2003. Construction would be carried out by one or more construction contractors hired by the project developer. Temporary facilities would include up to two 10-acre main staging areas, up to 14 2-acre intermediate staging areas, and two 8-acre quarry sites/concrete batch plants, as shown in Figure 2.1-2. Table 2.1-4 lists construction equipment typically used for wind project construction.

**TABLE 2.1-4**  
Equipment Typically Used for Wind Project Construction

<b>Equipment</b>	<b>Use</b>
Bulldozer	Road and foundation construction
Grader	Road and foundation construction
Water trucks	Compaction, erosion, and dust control
Roller/compactor	Road and foundation compaction
Backhoe/trenching machine	Digging trenches for underground cables
Heavy-duty rock trencher	Underground trenching
Truck-mounted drilling rig	Drilling tower foundations
Concrete trucks/concrete pumps	Pouring tower and other structure foundations
Cranes	Tower/turbine erection
Dump trucks	Hauling road and pad material
Flatbed trucks	Hauling wind turbines, towers, transformers, and other equipment
Pickup trucks	General use and hauling minor equipment
Small hydraulic cranes/fork lifts	Loading and unloading equipment
Four-wheel-drive all-terrain vehicles	Rough grade access and underground cable installation
Rough-terrain forklift	Lifting equipment

### 2.1.3.1 Erosion Control

The erosion control plan, which is required under the project NPDES 1200C General Stormwater Permit, would include general “best management practices” for erosion control during and after construction. These practices would likely include sediment-control basins and traps in drainages or other erosion control devices such as jute netting, straw bales, soil stabilizers, and check dams. Surface flows would be directed away from cut-and-fill slopes and into ditches that outlet to natural drainages. Permanent drainage and erosion control facilities would be constructed as necessary to allow stormwater passage without damage to the roads or to adjacent areas, and without increasing sedimentation to any streams.

### 2.1.3.2 Temporary Staging Areas

During wind turbine installation, several temporary laydown or staging areas would be required. Depending on the size of the project, these areas would include up to two 10-acre main staging areas and up to 14 2-acre intermediate staging areas where tower sections, nacelles, and other components would be temporarily stored as each wind turbine string is constructed. In general, a 2-acre laydown/staging area would be required for each group of 25 to 50 turbines. These staging areas also would be used for parking construction vehicles, construction employees’ personal vehicles, and other construction equipment. Portable fuel tanks (500- to 1,000-gallon above-ground tanks with berms) could be used for equipment fueling at some staging areas.

At each turbine location, an area of approximately 250 feet by 250 feet (62,500 square feet) would be required to place turbine blades and other turbine components and to station a

construction crane as each tower is erected. At the end of most turbine strings (except where a turbine string is adjacent to a through road), an area approximately 180 feet by 180 feet also would be needed to allow construction equipment to turn around. After construction has been completed, laydown and staging areas would be graded and reseeded to wheat or native grasses as necessary to restore the area as close as possible to its original condition.

### **2.1.3.3 Quarry Sites/Concrete Batch Plants**

The potential locations for quarry sites/concrete batch plants are shown in Figure 2.1-2. The eastern quarry pit already exists. The western quarry would need to be developed. The quarries could possibly provide all the gravel supplies for construction of the project. Approximately 8 acres would be needed for each quarry and ancillary facility. The sites would include the quarry, raw material stockpiles (for example, sand and gravel, concrete aggregates), a mobile crusher for the concrete batch plant, a diesel generator, parking, storage, and a settling pond.

Portable concrete batch plants are permitted under Washington's Sand and Gravel General NPDES permit. Portable batch plants are those that operate at a site for less than 1 year. The general permit requires a monitoring plan, stormwater pollution prevention plan, an erosion and sediment control plan, and a spill plan. The permit requires restoration of the site after the portable batch plant and associated facilities are removed. For concrete truck washout, best management practices would be incorporated that require a settling pond to catch washdown and stormwater runoff. A water storage tank could be used at the portable batch plant to store water hauled from an offsite source if water was not available at the site.

### **2.1.3.4 Site Cleanup**

Final cleanup and restoration would occur immediately following construction as weather permits. Waste materials (for example, brush, rock, construction materials) would be removed from the area and recycled or disposed of at approved facilities. Excess soil would be tamped around turbines and power poles or spread on the site. Disturbed areas would be graded and reseeded with native vegetation as necessary. Reseeding would be carried out in consultation with the Weed Control Boards of Yakima and Benton Counties and landowners.

### **2.1.3.5 Fire Emergency Plan**

Because part of the proposed project site is not located within a county fire protection district, a fire emergency plan would be developed and submitted to Benton and Yakima County Fire Marshals for approval prior to beginning construction of the project. This plan would outline onsite fire prevention and suppression methods that would be used during construction and operation of the proposed project. The plan could require onsite water tanks containing sufficient water to fight grass fires (as determined by the fire districts). Operation and maintenance staff would be instructed in fire suppression techniques. The construction contractor specifications would include provisions such as limiting vehicle traffic to access roads and gravel areas, and limiting smoking to inside vehicles only.

### **2.1.3.6 Employment**

The project developer anticipates that about 150 workers would be employed for approximately 9 months to construct the facilities. A peak workforce of up to 350 workers would be onsite during an estimated 4-month peak construction period. Construction workers would be employees of various construction and equipment manufacturing companies under contract to the project developer. It is likely that construction workers would include a mix of locally hired (Yakima and Benton Counties) workers for road and turbine foundation construction, and if necessary, workers from outside the two-county area for specialized construction.

### **2.1.4 Operation and Maintenance Activities**

The project developer would operate and maintain the project. Every turbine in the project would be monitored by a 24-hour computerized control system, with staff monitoring computers at the project's O&M buildings and remotely from other office locations. Routine maintenance of the turbines would be performed to maximize performance and detect and prevent potential difficulties. O&M personnel would perform both routine maintenance and most major repairs. Most servicing would be performed "uptower" (that is, without using a crane to remove the turbine from the tower). Routine maintenance would include periodically replacing lubricating fluids, checking parts for wear, readjusting components, and recording data from meteorological tower data recording chips. All roads, pads, and trenched areas would be inspected regularly and would be maintained to minimize erosion.

Up to 15 permanent full-time staff would be employed during operation of the project. Most of the O&M staff would likely be hired locally. One or two supervisors with experience at other wind turbine projects would supervise the O&M staff.

### **2.1.5 Decommissioning**

For financial evaluation and contractual purposes, the project is assumed to have a useful life of 20 years. The trend in the wind energy industry has been to "repower" older wind energy projects by upgrading equipment with more efficient turbines. It is likely that the project would be upgraded with more efficient equipment and could have a useful life far longer than 20 years. BPA would have the option to extend its power purchase agreement at that time. If the project were terminated, the project developer would request the necessary authorizations from the appropriate regulatory agencies and landowners to decommission the facilities. All facilities would be removed to a depth of 3 feet below grade and unsalvageable material would be disposed of at authorized sites. The soil surface would be restored as close as possible to its original condition, or to match the current land use. Reclamation procedures would be based on site-specific requirements and techniques commonly employed at the time the area would be reclaimed, and would likely include regrading, adding topsoil, and revegetating all disturbed areas. Decommissioned roads would be reclaimed or left in place based on landowner preference, and the leased property would be relinquished to the landowner.

## 2.2 No Action Alternative

Under the No Action Alternative, BPA would not purchase or transmit power from the proposed project. Therefore, it is likely that the project would not be constructed or operated, and the potential environmental impacts associated with the proposed project would not occur.

If the project is not built, the region's need for power could be met by development of a gas-fired combustion turbine. While more than 28,000 MW of gas-fired combustion turbine projects have been proposed for the region, less than 3,000 MW of wind projects currently are being developed. Because the construction and operation of gas-fired generation is a predictable consequence of not building the project, it is considered a predictable outcome of the No Action Alternative. Although it would be speculative to estimate the impacts of a similarly sized CT due to the uncertainty of the location and type of technology, impacts of a typical CT are identified in the No Action Alternative sections of Chapter 3 for informational purposes.

Impacts from gas-fired combustion turbine projects include air emissions and other impacts of construction and operation in the vicinity of the new plants, and impacts associated with natural gas extraction and transport. Combustion turbine projects require significant amounts of water, the appropriation of which may have adverse impacts on limited surface water or groundwater resources. Gas extraction impacts include those related to drilling and associated development activities, and those related to ongoing operation of gas wells and associated delivery systems, which would occur for the life of the project.

While conservation can provide for a significant portion of the regional energy needs, cost-effective conservation is being comprehensively addressed in the region and would not predictably replace new generation. Therefore, it is not appropriate to consider conservation as a predictable outcome for the No Action Alternative.

## 2.3 Alternatives Considered but Eliminated from Detailed Evaluation

Throughout the scoping process and during the development of this EIS, the lead agencies considered a wide range of alternatives for the proposed action. In their consideration of potential alternatives, the lead agencies assessed whether each potential alternative was reasonable under the National Environmental Policy Act (NEPA) and the State Environmental Policy Act (SEPA) and thus merited detailed evaluation in this EIS. In making this determination, the lead agencies assessed whether the potential alternative met the identified purposes of and need for the proposed action, including the objective of BPA to acquire power from wind resources. In addition, BPA considered the goal of the project developer to develop a wind farm specifically at the site identified in their proposal. Alternatives that did not meet the purposes and need did not merit detailed evaluation in this EIS, nor did alternatives already assessed in other EISs, that were not practical or feasible, or that obviously would have greater adverse environmental effects than the proposed action. This section summarizes those alternatives that were considered but eliminated from detailed evaluation in this EIS.

### **2.3.1 BPA Development of Wind Power**

BPA does not have the statutory authority to own energy resources. Therefore, BPA enters into power purchase agreements with energy developers to acquire the power from resources cultivated by these developers in order to serve BPA customer needs. Because alternatives involving BPA development or ownership of a wind resource would not be feasible, these alternatives were eliminated from detailed evaluation in this EIS.

### **2.3.2 Alternative Energy Resources**

As discussed in Section 1.2, BPA needs to acquire power from wind power resources. BPA also has objectives of bringing wind power to market and responding to the project developer's proposal to develop a wind farm at the proposed project site (see Section 1.3). In addition, potential environmental impacts from development of alternative energy resources have already been assessed by BPA in its Resource Programs EIS (RPEIS). The RPEIS analyzed the environmental trade-offs among all reasonably available energy resources, including conservation, renewable resources (wind, solar, geothermal, biomass, and hydro), system efficiency improvements, cogeneration, combustion turbines, nuclear power, and coal. As stated in Section 1.2, the BPA Administrator has chosen to implement the Emphasize Conservation Alternative from the RPEIS, and acquisition of wind power is consistent with this decision. Thus, because alternatives involving other energy resources would not meet the purposes and need of the proposed action and have already been evaluated in the RPEIS, these alternatives were eliminated from detailed evaluation in this EIS.

### **2.3.3 Alternative Transmission Paths**

Two existing power lines cross the project site – BPA's 500-kV John Day-Hanford transmission line, and BPA's 230-kV Big Eddy-Midway transmission line. The project developer sited the project in part to take advantage of these transmission lines. Connection of more than 50 aMW of the proposed project to either of these BPA lines would require the developer to build a 4-mile-long transmission line. This line would extend almost due west from the eastern project substation to an interconnection point along the Big Eddy-Midway line (see Figure 2.1-2).

Alternative transmission paths or interconnection points for the first 50 aMW of the proposed project would involve constructing a transmission line that would not need to be constructed under the project as currently proposed in order to connect to another point on the transmission grid. Because more land would be affected by such an alternative, there likely would be greater adverse environmental effects to land uses (primarily agricultural uses), vegetation, and wildlife habitat. Construction of a transmission line for the first 50 aMW also would increase the potential for adverse effects to cultural resources, and this line would result in greater visual effects. In addition, construction of a transmission line for this stage would greatly increase project costs, and would likely render the project economically infeasible. Thus, because alternatives involving alternative transmission paths would have greater adverse environmental effects than the proposed action and likely would render the project infeasible, these alternatives were eliminated from detailed evaluation in this EIS.

As discussed in Section 2.1.2.2, alternative transmission paths or interconnection points for subsequent stages of the proposed project could involve constructing a transmission line

that would be several more miles in length than the proposed 4-mile transmission line, or building the proposed 4-mile line and double-circuiting several miles of the existing Big Eddy-Midway transmission line. These alternatives would have the same potential for greater impacts discussed above for a new line for the first 50 aMW of the proposed project. In addition, these alternative transmission paths would require several more miles of line installation than the proposed path, which would greatly increase project costs and likely render the project economically infeasible. Thus, because alternatives involving alternative transmission paths would have greater adverse environmental effects than the proposed action and likely would render the project infeasible, these alternatives were eliminated from detailed evaluation in this EIS. If consideration of these alternatives becomes necessary as a result of BPA's transmission study, additional environmental analysis would be prepared as necessary.

### **2.3.4 Alternative Wind Turbine Locations**

The siting of wind turbines is constrained by the need for a location with a sufficient wind resource to allow the project to operate in a commercially and technically viable manner. Thus, wind turbines must be sited in locations where data show that there are sufficient wind speeds on a regular basis throughout the year.

The project developer's proposal for the Maiden Wind Farm identified only the proposed site for development of the project. This study area was chosen because of the high quality of the wind resource at this location. Other factors considered were the relative ease of access to the site and its proximity to BPA transmission lines. All of these factors combined to make the proposed site the most practical and feasible from a technical and economic standpoint. Other possible locations would jeopardize this feasibility, due to a lack of sufficient wind resource (and thus operational problems and a lower return on investment), more difficult access, and/or remoteness from any nearby BPA transmission lines (which would require construction of more lengthy transmission lines to interconnect). One of the purposes of the proposed action is to respond to the project developer's proposal, and alternative locations would not accomplish this objective.

In siting the individual turbines within strings at the project site, the same factors were considered that were used in choosing the study area. The turbines have been sited to minimize environmental effects to the greatest extent possible while maintaining the commercial viability of the project, and mitigation is identified in this EIS to further reduce and avoid potential impacts.

Thus, alternative wind turbine locations were eliminated from detailed evaluation in this EIS because these alternatives would jeopardize the feasibility of the project and would not meet the purposes of the proposed action.

## **2.4 Comparison of the Alternatives**

The environmental impacts of the proposed action and the no action alternatives were evaluated and are described in Chapter 3, Affected Environment and Environmental Consequences. Table S-1 in the Summary section summarizes the environmental impacts of the proposed action. Potential significant impacts of the proposed project include impacts to ferruginous hawk, visual resources, and sensitive research facilities on the Hanford

Reservation. Under the no action alternative, the proposed project would not be constructed or operated, and the potential environmental impacts associated with the proposed project would not occur.

Table 2.4-1 compares the Proposed Action and the No Action alternatives based on the purposes described in Chapter 1, Section 1.3, Purposes of Action. Purposes help decision-makers decide which alternative is the best alternative to meet the need. This information, combined with the environmental impacts associated with each alternative, forms the basis for a decision on which alternative to choose.

**TABLE 2.4-1**  
Comparison of Alternatives

Purposes	Proposed Action	No Action
Acquire wind power to fulfill BPA's obligations under the Northwest Power Act regarding the acquisition of additional power generation resources and development of renewable energy resources	Purchasing power from the proposed project would help fulfill BPA's obligations	By not purchasing power from the proposed project, BPA would forgo this opportunity to acquire a wind power resource
Further the objectives of the President's National Energy Policy to diversify energy sources by making greater use of non-hydroelectric renewable sources such as wind power	Purchasing power from the proposed project would help further the President's National Energy Policy	By not purchasing power from the proposed project, BPA would forgo this opportunity to further the President's National Energy Policy
Protect BPA and its customers against risk of power outages by diversifying BPA's energy supplies	Purchasing power from the proposed project would help diversify BPA's energy supplies, thereby helping to lower risk to BPA's customers	By not purchasing power from the proposed project, BPA would forgo this opportunity to diversify its energy supplies
Meet growing customer demand for energy from renewable energy resources	Purchasing power from the proposed project would help meet customer demand for renewable energy	By not purchasing power from the proposed project, BPA would forgo this opportunity to increase its ability to meet customer demand for renewable energy
Ensure consistency with the resource acquisition strategy of BPA's Resource Programs and Business Plan	Purchasing power from the proposed project would be consistent with the resource acquisition strategy of BPA's Resource Programs and Business Plan	By not purchasing power from the proposed project, BPA would forgo this opportunity for a project that would be consistent with its resource acquisition strategy
Further the objective of BPA's PBL Strategic Plan to increase the amount of renewable energy resources under contract and to evaluate issues of integration and operation of wind resources	Purchasing power from the proposed project would increase the amount of renewable energy resources BPA has under contract and would help BPA to evaluate integration and operation issues	By not purchasing power from the proposed project, BPA would forgo this opportunity to help fulfill this objective
Respond to the project developer's application to BPA for the purchase and transmission of power generated by wind turbines at the proposed Maiden Wind Farm site	Purchasing power from the proposed project would respond positively to the project developer's application to BPA to purchase and transmit power from the proposed project	Not purchasing power from the proposed project would respond negatively to the project developer's application to BPA to purchase and transmit power from the proposed project

## 2.5 Preferred Alternative

BPA's preferred alternative is the proposed action to execute power purchase and construction and interconnection agreements to acquire and transmit up to 50 aMW of output from the project developer's proposed Maiden Wind Farm. The proposed project is the only alternative that meets the underlying need for the action and best meets the purposes of the action.